

WHAT IS CLAIMED IS:

1. An active matrix type liquid crystal display (LCD) system, comprising:
 - a first substrate including a plurality of pixel electrodes arranged in matrix form, a plurality of thin film transistors each having a gate electrode and a source electrode, a plurality of data lines transmitting data signals to the source electrodes, and a plurality of gate lines transmitting gate signals to the gate electrodes from a first end to a second end of each gate line;
 - a second substrate opposing to the first substrate, the second substrate having a common electrode facing the plurality of pixel electrodes of the first substrate;
 - a liquid crystal layer between the first and second substrates;
 - a gate line driving circuit transmitting the gate signals to the first ends of the plurality of gate lines;
 - a data line driving circuit transmitting the data signals to the plurality of data lines;
 - a constant current source for supplying a constant current to a first position of the common electrode corresponding to the first end of one gate line, the first position having a first contact resistance;
 - a common voltage supply for applying a common voltage to a second position of the common electrode corresponding to the second end of the one gate line, the second position having a second contact resistance;
 - first and second connection points between the first and second substrates, respectively, through the first and second connection points the constant current and the common voltage being transmitted to the second substrate from the first substrate; and
 - wherein the first contact resistance is between the first position of the common

23 electrode and the first connection point, and wherein the second contact resistance is between
24 the second position of the common electrode and the second connection point.

1 2. A system according to claim 1, wherein the first and second connection points include
2 a silver paste.

1 3. A system according to claim 1, wherein the common voltage is supplied to the second
2 connection point through a common voltage transmitting terminal.

1 4. A system according to claim 3, wherein the common voltage transmitting terminal
2 includes one selected from the group consisting of Chrome, Molybdenum, Tantalum and
3 silver.

1 5. A system according to claim 3, further including a data tape carrier package through
2 which the data signals are transmitted to the plurality of data lines from the data driving
3 circuit, and the common voltage from the common voltage supply is transmitted to the
4 common voltage transmitting terminal.

1 6. A system according to claim 1, wherein the constant current is supplied to the first
2 connection point through a constant current transmitting terminal.

1 7. A system according to claim 6, wherein the constant current transmitting terminal
2 includes one selected from the group consisting of Chrome, Molybdenum, Tantalum and

3 silver.

1 8. A system according to claim 6, further including a plurality of gate tape carrier
2 packages through which the gate signals are transmitted to the plurality of gate lines from the
3 gate driving circuit and the constant current from the constant current source is transmitted to
4 the constant current transmitting terminal.

1 9. A system according to claim 8, wherein the constant current is transmitted to the
2 constant current transmitting terminal through two gate tape carrier packages.

1 10. A system according to claim 9, wherein the two tape carrier packages are positioned at
2 opposing ends corresponding to the first ends of the gate line.

1 11. A system according to claim 1, wherein a current through the common electrode is
2 $(V_r - V_i)/R_c$, and wherein V_r is a voltage of the common voltage after passing across the first
3 contact resistance, V_i is a voltage of the common voltage after passing across the first contact
4 resistance and the common electrode, and wherein R_c is a resistance of the common
5 electrode.

1 12. A system according to claim 1, wherein the constant current source further comprises
2 an amplifier that can adjust the constant current thereof depending on the value of the
3 common voltage of the common voltage supply.

1 13. A system according to claim 12, wherein the amplifier includes a transistor.

1 14. A method of adjusting a common voltage for an active matrix liquid crystal display
2 device, the liquid crystal display device including a first substrate including a plurality of
3 pixel electrodes arranged in matrix form, a plurality of thin film transistors having a gate
4 electrode and a source electrode, a plurality of data lines transmitting data signals to the
5 source electrode, and a plurality of gate lines transmitting gate signals to the gate electrode
6 from a first end to a second end thereof; a second substrate opposing to the first substrate, the
7 second substrate having a common electrode facing the plurality of pixel electrodes of the
8 first substrate; a liquid crystal layer between the first and second substrates; a gate line driving
9 circuit transmitting gate signals to the first ends of the plurality of gate lines; and a data line
10 driving circuit transmitting data signals to the plurality of data lines, the method, comprising:
11 applying a constant current to the common electrode through a second connection
12 point having a second contact resistance at a position corresponding to the first end of the
13 plurality of gate lines; and
14 applying a common voltage to the common electrode through a first connection point
15 having a first contact resistance at a position corresponding to the second end of the plurality
16 of gate lines.

1 15. A method according to claim 14, wherein applying a constant current to the common
2 electrode comprises:
3 connecting a first tape carrier package between a first circuit board and the liquid
4 crystal display device; and

5 supplying the constant current from a constant current supply on the first circuit board
6 through the first tape carrier package to the common electrode of the liquid crystal display
7 device.

1 16. A method according to claim 15, wherein applying a common voltage to the common
2 electrode comprises:

3 connecting a second tape carrier package between a second circuit board and the
4 liquid crystal display device; and

5 supplying the common voltage from a common voltage supply on the second circuit
6 board through the second tape carrier package to the common electrode of the liquid crystal
7 display device.

1 17. A liquid crystal display (LCD) device, comprising:

2 a first substrate including a plurality of thin film transistors each having,

3 a gate electrode, a source electrode, and a drain electrode, and

4 a plurality of pixel each connected a corresponding one of the drain electrodes,

5 a plurality of data lines transmitting data signals to the source electrodes, and

6 a plurality of gate lines transmitting gate signals to the gate electrodes;

7 a second substrate opposing to the first substrate, the second substrate having a
8 common electrode facing the plurality of pixel electrodes of the first substrate; and

9 a liquid crystal layer between the first and second substrates;

10 wherein a constant current is applied to a first position of the common electrode, and

11 wherein a common voltage is applied to a second position of the common electrode.

1 18. An LCD device according to claim 17, wherein the first position of the common
2 electrode corresponds to a first end of the common electrode, and wherein the second position
3 of the common electrode corresponds to a second end of the common electrode opposite the
4 first end.

1 19. An LCD device according to claim 17, wherein the first position corresponds to first
2 ends of the plurality of gate line, and wherein the second position corresponds to second ends
3 of the plurality of gate lines.

1 20. A liquid crystal display (LCD) panel, comprising:
2 a first substrate including a plurality of thin film transistors each having,
3 a gate electrode, a source electrode, and a drain electrode, and
4 a plurality of pixel each connected a corresponding one of the drain electrodes,
5 a plurality of data lines transmitting data signals to the source electrodes, and
6 a plurality of gate lines transmitting gate signals to the gate electrodes;
7 a second substrate opposing to the first substrate, the second substrate having a
8 common electrode facing the plurality of pixel electrodes of the first substrate;
9 a liquid crystal layer between the first and second substrates;
10 a constant current source for applying a constant current to a first position of the
11 common electrode, and
12 a common voltage supply for applying a common voltage to a second position of the
13 common electrode.

1 21. An LCD panel according to claim 20, further comprising a gate driver, wherein the
2 gate driver is connected to first ends of the gate lines.

1 22. An LCD panel according to claim 20, further comprising:
2 a first circuit board having the constant current source; and
3 a first tape carrier package connected between the first circuit board and the common
4 electrode for applying the constant current to the common electrode.

1 23. An LCD panel according to claim 22, further comprising a gate driver, wherein the
2 gate signals are transmitted from the gate driver to the gate lines through the first tape carrier
3 package.

1 24. An LCD panel according to claim 22, further comprising:
2 a second circuit board having the common voltage supply; and
3 a second tape carrier package connected between the second circuit board and the
4 common electrode for applying the common voltage to the common electrode.

1 25. An LCD panel according to claim 24, further comprising a data driver, wherein the
2 data signals are transmitted from the data driver to the data lines through the second tape
3 carrier package.